New Direction And Opportunities For The Army . . .

GROUND-BASED MIDCOURSE DEFENSE

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Introduction

The Army's transformation and the associated debates surrounding transformation are widely publicized in today's Defense and business periodicals. However, little is discussed about the Army's transforming role in missile defense. As technologies mature, the vision of an integrated Ballistic Missile Defense System (BMDS) becomes clearer, and the Army's successful transformation of this vision into a reality will largely rely on the role it plays in the Ground-Based Midcourse Defense (GMD) Program.

The GMD Program mission is to develop and build the initial parts of the BMDS test bed by Sept. 30, 2004, providing a robust capability to test GMD components and the backbone for future testing of BMDS elements. The test bed encompasses the northern two-thirds of the Pacific Ocean, with test infrastructure in California, Colorado, Alabama, Hawaii, several locations in Alaska, the Ronald Reagan Ballistic Missile Defense Test Site on U.S. Army Kwajalein Atoll, and the Republic of the Marshall Islands. Additional airborne and seaborne platforms will also be used and will include a 14-story tall X-band radar mounted on a sea-based platform.

The GMD Joint Program Office, headed by Program Director BG(P) John W. Holly, has the authority and responsibility to manage this joint-Service, multibillion dollar program. Of 10 joint positions heading GMD component and directorate offices, 6 are Army—2 of which are brigade command equivalents. The Army is also fulfilling its historical role, with the U.S. Army Corps of Engineers managing much of the construction, the Reagan Test Site on Kwajalein Atoll providing test range support, the U.S. Army Space and Missile Defense Command providing basing and force protection, and the Army providing the forces to support the fielding of emergency capabilities if necessary. GMD is a leading technology initiative for the Army and DOD. In the last fiscal year, more than $3.2 billion of joint Office of the Secretary of Defense funding was allocated to the GMD Program under a capabilities-based effort focused on delivering a prototype test bed to defend America against ballistic missile attack.

Background

Rogue nations and states that support terrorism are intent on developing missiles capable of delivering weapons of mass destruction to threaten the United States, our deployed forces, and our friends and allies. Our Nation currently has no defense against long-range ballistic missile attacks. Our early warning satellites and radars would inform us of an attack we could not defeat. Damage to the American populace and infrastructure from nuclear, biological, or chemical payloads would be devastating—far more deadly than the attacks of September 11, 2001.

Effective Defense

An effective missile defense system is our Nation's best insurance policy against accidental, unauthorized, or deliberate ballistic missile attack. Such a system would act as a deterrent by reducing the strategic value of long-range missiles and an aggressor's will to acquire them. Ever since V-1 flying bombs were launched toward London in 1944, the U.S. Army has been called on to defend against missile threats. Today, the Army continues to play a prominent role in the development, production, and fielding of missile defense systems.

Our Nation's leaders are committed to making ballistic missile defense a reality. On July 22, 1999, then President William J. Clinton signed into law the National Missile Defense Act of 1999 that states, "It is the policy of the United States to deploy as soon as is technologically possible an effective National Missile Defense system capable of defending the territory of the United States against limited ballistic missile attack." President George W. Bush reaffirmed this commitment in his 2002 State of the Union Address.

In January 2002, Secretary of Defense Donald R. Rumsfeld converted the Ballistic Missile Defense Organization into the Missile Defense Agency (MDA), with a charter to develop a BMDS to defend against all ranges of ballistic missile threats. The BMDS will employ layered systems with integrated architectures capable of intercepting enemy missiles at multiple opportunities during a threat missile's trajectory. The three phases of flight include the boost phase, or during the missile's ascent; the midcourse phase, in which the missile is traveling outside the earth's atmosphere; and the terminal phase, in which the missile warhead is re-entering the atmosphere toward its target. The MDA is currently evaluating numerous technologies for defeating enemy missiles in each phase.

The Challenge

The technology and planning for GMD is the most mature of the MDA's midcourse Defense programs. The GMD Program has already demonstrated great potential to deliver effective protection for all 50 states. Unlike earlier missile defense systems that used

explosive warheads to destroy their targets, GMD uses hit-to-kill interceptors that collide with their targets at extremely high speeds, using kinetic energy to destroy the target's payload. These intercepts are often compared to "hitting a bullet with a bullet," an analogy that does not do justice to the achievement of the actual physics involved. In a GMD engagement, the threat warhead and the hit-to-kill interceptor reach closing velocities near 15,000 mph. Added countermeasures and decoys around the target warhead make the interceptor's job of colliding with the correct object more difficult.

Until recently, skeptics have dismissed hit-to-kill as impossible because of the complexity in achieving these high-speed, metal-on-metal intercepts. Critics accused missile defense program advocates of being overly ambitious and of throwing money at unreachable technologies. However, in recent years, the Army's theater missile defense programs, i.e., PATRIOT Advanced Capability (PAC)-3 and Theater High Altitude Area Defense (THAAD), have routinely achieved hit-to-kill test intercepts. Since October 1999, GMD has achieved four successful hit-to-kill intercepts (in six attempts) of mock enemy warheads in long-range midcourse scenarios, including three straight hits in the last three tests. These successes validate the fundamental technology and provide a solid foundation for future GMD development and testing.

New Strategic Era

A few weeks before Secretary Rumsfeld's restructuring of the MDA, the President announced the Nation's intention to withdraw from the 1972 Anti-Ballistic Missile (ABM) Treaty. This treaty had prohibited testing and deployment of comprehensive missile defenses. Under the ABM Treaty, GMD's flight test engagements had been limited to a single test configuration, and all performance predictions had to be derived from modeling and simulation extrapolation.

On June 15, 2002, 2 days after the official withdrawal from the ABM Treaty, construction began on the test bed. Shovel in hand, Sen. Ted Stevens (R-AK) joined LTG Ronald T. Kadish, USAF, MDA Director; LTG Joe Cosumano, Commanding General, U.S. Army Space and Missile Defense Command; BG(P) John W. Holly, Program Director of the GMD Joint Program Office; and other dignitaries in the official groundbreaking at Fort Greely, AK. With a scoop and a toss of the earth, the United States entered a new strategic era in which we are free to develop and test effective defenses against ballistic missile attacks.

A payload launch vehicle carries a hit-to-kill interceptor on its way to another successful target intercept.

Expanded Testing

Freed from the terms of the ABM treaty, GMD Program developers now have the flexibility to expand the GMD Program test envelope, perform extensive experimentation—including additional sensors such as Aegis cruisers or a THAAD radar—and stress its system elements. Multiple test configurations are now possible, and new technologies can be inserted soon after they become available. GMD will sequentially increase target complexity, building more confidence in the overall system by using more variables for impact angles and velocities. The test bed will validate the GMD operational concept through operationally realistic testing and operational prototypes of future GMD components. The GMD technology development program will continue to feed improvements to the test bed over time via block upgrades.

Today, Army COL Kevin Norgaard, the GMD Alaskan Site Activation Commander, is orchestrating a flurry of activities at Fort Greely. Test bed facilities under construction include an in-flight interceptor communications system data terminal, a battle management command and control node, and six silos to house interceptor missiles. Activities at Fort Greely will validate arctic site preparation and construction techniques; refine logistics, maintenance, and training procedures; and analyze the functional capabilities of complex systems under realistic conditions. One of the most important specialty tests GMD will perform in Alaska will be conducted on the Ground-Based Interceptor. The interceptor will be constructed, transported, and inprocessed at the test site and subsequently emplaced in a silo. It will require routine, day-to-day maintenance and training operations as part of a full-up testing system.

While GMD is building an extended test bed, not deploying an operational missile defense system, test bed components could be activated for use in an emergency to protect our Nation from ballistic missile attack.

Summary

Though no single system or Service can defend the United States, our deployed forces overseas, and our friends and allies against the full spectrum of missile threats, the Army has a long legacy of fielding effective missile defense systems. This legacy will continue with the eventual success of the GMD element of BMDS. As the lead Service for the GMD Program, the Army is playing a key role in development and later production of this critical component of homeland defense.

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